

Commit : d795f3ef0

1. Fix build errors of **fbthrift** due to missing dependency on **mvfst**: *git format-patch -1 bfe734f327* • [Patch Link](#)

2. After the above patch is applied we still face a compilation problem in **mvfst** due to a dependency on **folly**. Enforce the dependency versions from the working commit to the FDP commit by modifying the build-package.sh.

• [Patch Link https://drive.google.com/file/d/1fdLCHEmuO4OvYmW9\\_TJoJjQW4mnJoUwD/view](https://drive.google.com/file/d/1fdLCHEmuO4OvYmW9_TJoJjQW4mnJoUwD/view)

Comparison of Dependency Versions –

**FDP Commit** [<https://github.com/arungeorge83/CacheLib.git>, build fail] folly: 5b5b3d3e1

fbthrift: 742a4bbbd5

fmt: 8.0.1

gflags: v2.2.2

googletest: origin/main

sparsemap: origin/master

zstd: 8420502e

fizz: 235358e8

glog: v0.5.0

mvfst: origin/main

wangle: f3233949

**Working Commit** [commit ID: d795f3ef0, build successful] folly: f949ffbab

fbthrift: e7287b3b89

fmt: 8.0.1 [==]

gflags: v2.2.2 [==] googletest: origin/main [==] sparsemap: origin/master [==]

zstd: 8420502e [==]

fizz: 9b6b3073

glog: v0.5.0 [==]

mvfst: af568ade

wangle: f5a09d0e

# Steps to install CacheLib

*Written by Inho Song*

Target commit : Commit Release Stable 20240621

1. Redo CacheLib git

```
git clone https://github.com/facebook/CacheLib.git CacheLib-bare
```

2. Set to c5c0d9b0, git reset --hard c5c0d9b08d7914343760d11cabd58fffa5775484  
(v20240621 stable commit)

```
# git reset --hard c5c0d9b08d7914343760d11cabd58fffa5775484  
HEAD is now at c5c0d9b0 Updating submodules
```

3. ./contrib/build.sh -j -T

```
Cloning into '/home/inho/inno/git/CacheLib-bare/cachelib/external/  
fbthrift'...  
Cloning into '/home/inho/inno/git/CacheLib-bare/cachelib/external/  
fizz'...  
Cloning into '/home/inho/inno/git/CacheLib-bare/cachelib/external/  
folly'...  
Cloning into '/home/inho/inno/git/CacheLib-bare/cachelib/external/  
mvfst'...  
Cloning into '/home/inho/inno/git/CacheLib-bare/cachelib/external/  
wangle'...  
Submodule path 'cachelib/external/fbthrift': checked out  
'57ac13afc2e861cb9ca2ea43a2d95dbaea65ea49'  
Submodule path 'cachelib/external/fizz': checked out  
'43169fcd8c225aa4f480ba808a237ee9a96b79e'  
Submodule path 'cachelib/external/folly': checked out  
'd0bdf42824c0ecbd929da01d8579a4193f02c4b3'  
Submodule path 'cachelib/external/mvfst': checked out  
'1aa0ed37274242bdede8482b7f208eaab47b4f43'  
Submodule path 'cachelib/external/wangle': checked out  
'9b163d81a20dd2e678670fba764eaa8c3a79aa9e'
```

```
Entering 'cachelib/external/fbthrift'
Entering 'cachelib/external/fizz'
Entering 'cachelib/external/folly'
Entering 'cachelib/external/mvfst'
Entering 'cachelib/external/wangle'
```

3-1. During ./contrib/build.sh -j -T, make got stuck so interrupt and re-make

```
[ 85%] Building CXX object thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
server/ServerInstrumentation.cpp.o
^Cmake[2]: *** [thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
build.make:104: thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
GeneratedCodeHelper.cpp.o] Interrupt
make[2]: *** [thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
build.make:132: thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/async/
AsyncClient.cpp.o] Interrupt
make[2]: *** [thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
build.make:146: thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/async/
AsyncProcessor.cpp.o] Interrupt
make[2]: *** [thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
build.make:160: thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/async/
AsyncProcessorHelper.cpp.o] Interrupt
make[2]: *** [thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
build.make:258: thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/async/
HeaderChannel.cpp.o] Interrupt
make[2]: *** [thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
build.make:286: thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/async/
HeaderClientChannel.cpp.o] Interrupt
make[2]: *** [thrift/lib/cpp2/CMakeFiles/thriftcpp2.dir/
build.make:300: thrift/lib
```

> Increase VM memory size 64GB and core 48 and works

3-2 /home/inho/git/CacheLib/cachelib/external/folly/folly/  
Portability.h:38:24: **error:** static assertion failed: \_\_GNUC\_\_ >= 10

Gcc was 9.5 so upgrade to 11.4.0

...

```
$ sudo apt install gcc-11 g++-11
$ sudo ln -sf x86_64-linux-gnu-gcc-11 gcc
```

...

## 4. Done

'cachelib' is now installed

```
Installing: /home/inhoainno/git/CacheLib-bare/opt/cachelib/tests/cachebench-test-ValueTrackerTest
-- Installing: /home/inhoainno/git/CacheLib-bare/opt/cachelib/tests/cachebench-test-ValueTrackerTest
-- Installing: /home/inhoainno/git/CacheLib-bare/opt/cachelib/tests/cachebench-test-NandWritesTest
-- Installing: /home/inhoainno/git/CacheLib-bare/opt/cachelib/tests/cachebench-test-TimeStampTickerTest
'cachelib' is now installed
root@inhoainnofemu:~/git/CacheLib-bare#
root@inhoainnofemu:~/git/CacheLib-bare#
root@inhoainnofemu:~/git/CacheLib-bare#
```

++ make error

Error report #1 native liburing causes problem

/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`io\_uring\_unregister\_buf\_ring'

```
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_unregister_buf_ring'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_register_buf_ring'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_submit_and_get_events'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_get_events'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `google::LogMessage::LogMessage(char const*, int, int, unsigned long, void (google::LogMessage::*)())'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `google::ErrnoLogMessage::ErrnoLogMessage(char const*, int, int, unsigned long, void (google::LogMessage::*)())'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_register_ring_fd'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_submit_and_wait_timeout'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_setup'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to `io_uring_register'
collect2: error: ld returned 1 exit status
make[2]: *** [folly/logging/example/CMakeFiles/logging_example.dir/build.make:125: folly/logging/example/logging_example] Error 1
make[1]: *** [CMakeFiles/Makefile2:331: folly/logging/example/CMakeFiles/logging_example.dir/all] Error 2
make[1]: *** Waiting for unfinished jobs....
[ 98%] Linking CXX shared library libfolly_exception_tracer.so
```

/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`io\_uring\_unregister\_buf\_ring'  
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`io\_uring\_register\_buf\_ring'  
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`io\_uring\_submit\_and\_get\_events'  
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`io\_uring\_get\_events'  
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`google::LogMessage::LogMessage(char const\*, int, int, unsigned long, void  
(google::LogMessage::\*)())'  
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`google::ErrnoLogMessage::ErrnoLogMessage(char const\*, int, int, unsigned  
long, void (google::LogMessage::\*)())'  
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to  
`io\_uring\_register\_ring\_fd'


```

/usr/bin/ld: ../../../../libfolly.so.0.58.0-dev: undefined reference to
`io_uring_submit_and_wait_timeout'
/usr/bin/ld: ../../../../libfolly.so.0.58.0-dev: undefined reference to
`io_uring_setup'

/usr/bin/ld: ../../../../libfolly.so.0.58.0-dev: undefined reference to
`io_uring_register'
collect2: error: ld returned 1 exit status
make[2]: *** [folly/logging/example/CMakeFiles/logging_example.dir/
build.make:125: folly/logging/example/logging_example] Error 1
make[1]: *** [CMakeFiles/Makefile2:331: folly/logging/example/CMakeFiles/
logging_example.dir/all] Error 2
make[1]: *** Waiting for unfinished jobs....
[ 98%] Linking CXX shared library libfolly_exception_tracer.so

```

<https://github.com/facebook/CacheLib/issues/302>



jmhands on Apr 17, 2024

Author ...

I was able to get it working with the following steps

1. clean Ubuntu 22.04.4 install with HWE kernel 6.5
2. `sudo apt remove liburing2`
3. `sudo apt install build-essential`
- 4.

```

git clone https://github.com/axboe/liburing.git
cd liburing
./configure --cc=gcc --cxx=g++;
make -j$(nproc);
sudo make install;

```

- 5.

```

git clone https://github.com/facebook/CacheLib
cd CacheLib
./contrib/build.sh -d -j -v

```

this builds correctly but then I get an error when I run cachebench

```

bin/cachebench: /lib/x86_64-linux-gnu/liburing.so.2: version `LIBURING_2.2' not found (required
bin/cachebench: /lib/x86_64-linux-gnu/liburing.so.2: version `LIBURING_2.3' not found (required

```

but was able to resolve with

```

ls -l /usr/lib/x86_64-linux-gnu/liburing.so*
ls -l /usr/lib/liburing.so*

```

now that cachebench works...

- 6.

```

sudo apt install awscli aws s3 cp --no-sign-request --recursive s3://cachelib-workload-
sharing/pub/kvcache/202206/ ./

```

add these into config

```

"navyQDepth": 1,
"navyEnableIoUring": true,
"deviceEnableFDP": true,


```

7. run cachebench with `sudo bin/cachebench -`

```

json_test_config=test_configs/trace_replay/202206/config_kvcache.json --progress=600 -
progress_stats_file=cachebench-progress.log

```



7

1. `sudo apt remove liburing2`
2. `sudo apt install build-essential`
3. `git clone https://github.com/axboe/liburing.git`
4. `cd liburing`
5. `./configure --cc=gcc --cxx=g++;`
6. `make -j$(nproc);`
7. `sudo make install;`
8. `ls -l /usr/lib/x86_64-linux-gnu/liburing.so*`
9. `ls -l /usr/lib/liburing.so*`
10. `/* cp /usr/lib/liburing.so* /usr/lib/x86_64-linux-gnu/liburing.so* */`
11. `git clone https://github.com/facebook/CacheLib`
12. `cd CacheLib`
13. `./contrib/build.sh -d -j -v`
14. DONE

## Error report #2

libfolly.so.0.58.0-dev: undefined reference to `google::LogMessage::LogMessage  
 ISSUE google::LogMessage::LogMessage ?

```
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to
`google::LogMessage::LogMessage(char const*, int, int, unsigned long, void
(google::LogMessage::*)())'
/usr/bin/ld: ../../libfolly.so.0.58.0-dev: undefined reference to
`google::ErrnoLogMessage::ErrnoLogMessage(char const*, int, int, unsigned long, void
(google::LogMessage::*)())'
collect2: error: ld returned 1 exit status
```

```
folly)
  NAME=folly
- SRCDIR=cachelib/external/$NAME
- update_submodules=yes
+ REPO=https://github.com/facebook/folly.git
+ REPODIR=cachelib/external/$NAME
+ SRCDIR=$REPODIR
+ #update_submodules=yes
+ external_git_clone=yes
+ external_git_tag=f949ffbab
  cmake_custom_params="-DBUILD_SHARED_LIBS=ON"
  if test "$build_tests" = "yes" ; then
    cmake_custom_params="$cmake_custom_params -DBUILD_TESTS=ON"
@@ -209,8 +213,12 @@ case "$1" in
```

## Following Error report #2

```
/home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/ssl/SSLContextConfig.h:83:56:
error: 'sigalgs' is not a member of 'folly::ssl::SSLServerOptions' {aka
'folly::ssl::SSLServerOptionsCompatibility'}
  83 |         folly::join(':', folly::ssl::SSLServerOptions::sigalgs());
      |                                     ^~~~~~
make[2]: *** [CMakeFiles/wangle.dir/build.make:146: CMakeFiles/wangle.dir/acceptor/
FizzConfigUtil.cpp.o] Error 1
In file included from /home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/
bootstrap/ServerBootstrap.h:21,
      from /home/inho/git/CacheLib/cachelib/external/wangle/wangle/bootstrap/
ServerBootstrap.cpp:19:
/home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/bootstrap/ServerBootstrap-
inl.h: At global scope:
/home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/bootstrap/ServerBootstrap-
inl.h:379:77: error: expected class-name before '{' token
  379 |     class ServerWorkerPool : public folly::IOThreadPoolExecutorBase::IOObserver {
      |                                     ^
/home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/bootstrap/ServerBootstrap-
inl.h:397:8: error: 'void wangle::ServerWorkerPool::registerEventBase(folly::EventBase&)' marked
'override', but does not override
  397 |     void registerEventBase(folly::EventBase& evb) override;
      |           ^~~~~~
/home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/bootstrap/ServerBootstrap-
inl.h:398:8: error: 'void wangle::ServerWorkerPool::unregisterEventBase(folly::EventBase&)'
marked 'override', but does not override
  398 |     void unregisterEventBase(folly::EventBase& evb) override;
      |           ^~~~~~
In file included from /home/inho/git/CacheLib/cachelib/external/wangle/wangle/bootstrap/
ServerBootstrap.cpp:19:
/home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/bootstrap/ServerBootstrap.h: In
member function 'wangle::ServerBootstrap<Pipeline>*
wangle::ServerBootstrap<Pipeline>::group(std::shared_ptr<folly::IOThreadPoolExecutorBase>,
std::shared_ptr<folly::IOThreadPoolExecutorBase>)':
/home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/bootstrap/
ServerBootstrap.h:157:27: error: cannot convert 'shared_ptr<wangle::ServerWorkerPool>' to
'shared_ptr<folly::ThreadPoolExecutor::Observer>'
  157 |     io_group->addObserver(workerFactory_);
      |                           ^~~~~~
      |                           |
      |       shared_ptr<wangle::ServerWorkerPool>
In file included from /home/inho/git/CacheLib/opt/cachelib/include/folly/executors/
IOThreadPoolExecutor.h:22,
      from /home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/
bootstrap/ServerBootstrap-inl.h:21,
      from /home/inho/git/CacheLib/cachelib/external/wangle/wangle/./wangle/
bootstrap/ServerBootstrap.h:21,
      from /home/inho/git/CacheLib/cachelib/external/wangle/wangle/bootstrap/
ServerBootstrap.cpp:19:
/home/inho/git/CacheLib/opt/cachelib/include/folly/executors/ThreadPoolExecutor.h:182:28: note:
initializing argument 1 of 'virtual void
folly::ThreadPoolExecutor::addObserver(std::shared_ptr<folly::ThreadPoolExecutor::Observer>)'
  182 |     virtual void addObserver(std::shared_ptr<Observer>);
      |                           ^~~~~~
make[2]: *** [CMakeFiles/wangle.dir/build.make:132: CMakeFiles/wangle.dir/acceptor/
FizzAcceptorHandshakeHelper.cpp.o] Error 1
make[2]: *** [CMakeFiles/wangle.dir/build.make:90: CMakeFiles/wangle.dir/acceptor/
AcceptorHandshakeManager.cpp.o] Error 1
make[2]: *** [CMakeFiles/wangle.dir/build.make:216: CMakeFiles/wangle.dir/acceptor/
SSLAcceptorHandshakeHelper.cpp.o] Error 1
make[2]: *** [CMakeFiles/wangle.dir/build.make:76: CMakeFiles/wangle.dir/acceptor/Acceptor.cpp.o]
Error 1
```

```
make[2]: *** [CMakeFiles/wangle.dir/build.make:258: CMakeFiles/wangle.dir/bootstrap/  
ServerBootstrap.cpp.o] Error 1  
make[1]: *** [CMakeFiles/Makefile2:83: CMakeFiles/wangle.dir/all] Error 2
```

```
wangle)  
  NAME=wangle  
-   SRCDIR=cachelib/external/$NAME/$NAME  
-   update_submodules=yes  
+   REPO=https://github.com/facebook/wangle.git  
+   REPODIR=cachelib/external/$NAME  
+   SRCDIR=$REPODIR/$NAME  
+   #update_submodules=yes  
+   external_git_clone=yes  
+   external_git_tag=f5a09d0e  
  cmake_custom_params="-DBUILD_SHARED_LIBS=ON"  
  if test "$build_tests" = "yes" ; then  
    cmake_custom_params="$cmake_custom_params -DBUILD_TESTS=ON"  
@@ -231,10 +243,25 @@ case "$1" in  
  fi  
  ;;
```